

Remarks

Claims 1-9, 12-19, 21, 22, and 24-28 are currently pending. Claims 1-9, 12, 13, 14, and 25-28 have been withdrawn from consideration and Claim 15 has been amended. It is noted that all claim amendments made herein, including the withdrawal of the above-referenced claims, are made solely in an effort to expedite prosecution. The Applicants expressly reserve the right to pursue claims of broader scope in a continuation application.

In view of the foregoing claim amendments and following remarks, reconsideration and withdrawal of these grounds of rejection is requested.

Claim Rejections Under 35 U.S.C. §103

Claims 15-19, 21, 22, and 24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Fujimoto (EP 1033422A1) in view of Rowan et al. (U.S. Patent No. 4,851, 172). In view of the following remarks, withdrawal of this grounds of rejection with regard to Claims 15-19, 21, 22, and 24 is respectfully requested.

Claim 15 as amended recites a method of producing multifilament yarn comprising: 1) hauling-off a melt spun polymer via a first heated roll with a spinning rate of at least 2000 m/min; 2) without winding up, drawing the spun polymer via a second heated roll; and 3) relaxation heat treating the drawn polymer at a relaxation factor of 6%-20%. (See Figure 1 and page 13, lines 13-23 of the present application.)

In sharp contrast, Fujimoto discloses a process that explicitly discourages or ‘teaches away’ from utilizing a hauling-off spinning rate of at least 2000 m/min. and a relaxation factor of 6%-20% in the production of multifilament yarn. (Emphasis added.) It should be remembered that a reference may be said to teach away when a person of ordinary skill, upon reading the reference,

would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant...[or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.

The Examiner's attention is first invited to paragraphs [0035] and [0036] of Fujimoto. Fujimoto discloses that multifilaments are wound round a first heated roll (11). (See paragraph [0035], lines 43-44 of Fujimoto.) Next, the multifilaments are drawn via a second heated roll (12). (See paragraph [0036], lines 14-16 of Fujimoto.) The drawn multifilaments are then wound on a winder (13) "...rotating at a speed lower than that of the second roll (12)". (See paragraph [0036], lines 16-17 of Fujimoto.)

The applicants next invite the Examiner to paragraph [0076] and Table 1 of Fujimoto, wherein examples and comparative examples of conditions used for producing fibers are displayed. A careful examination of Table 1 indicates only a single instance in which an initial spinning speed of at least 2000 m/min. and a relaxation factor of 6%-20% was utilized to produce fibers, namely comparative example 5. According to comparative example 5, multifilament yarn is produced with an initial spinning rate of 4000 m/min. and a relaxation ratio of .92, i.e., a relaxation factor of 8%. However, paragraph [0076] of Fujimoto discourages the use of such production conditions, indicating that such conditions lead to unwindable yarn. Specifically, Fujimoto explains that "[e]ach of the yarns obtained in Comparative Examples 2, 3, and 5 showed drastic yarn breakage, and could not be wound." (See paragraph [0076], lines 30-31 of Fujimoto.) Table 2 of Fujimoto echoes these findings by indicating that yarn produced according to comparative example 5 "could not be wound". (See Table 2 of Fujimoto at comparative example 5.) Accordingly, since Fujimoto suggests, via comparative example 5, that utilizing a hauling-off spinning rate of at least 2000 m/min. and a

relaxation ratio of 6%-20% will lead to significant yarn breakage, one of ordinary skill in the art would be discouraged from producing yarn under such conditions. Thus, Fujimoto teaches away from Claim 15 and can therefore not be used to form a basis for an obviousness rejection.

The Applicants now address example 13 of Fujimoto, which was helpfully cited by the Examiner in Item 6 of the November 14, 2005 Office Action. According to example 13, the fibers are wound round a first roll (11) at a speed of 1600 m/min. The spun fibers are then drawn via a second roll (12) at a rate of 3,520 m/min., and wound on a third roll (13) at a speed of 3,100 m/min., a speed lower than that of the second roll (12). The winding speed of the third roll (13) creates a relaxation ratio of .88, i.e., a relaxation factor of 12%. As noted above, Claim 15 recites a hauling-off spinning speed of at least 2000 m/min. and a relaxation factor of between 6% and 20%. Since example 13 utilizes an initial spinning rate of 1,600 m/min., example 13 fails to anticipate claim 15, as indicated by the Examiner. Apparently, there is some confusion concerning the drawing speed of the second roll (3,520 m/min.) and the initial spinning speed in that example.

As the Examiner duly noted, Fujimoto is silent as to using a second heated roller of surface roughness 1.5S – 1.8S at 105-180°C. However, the rejection looks to Rowan to provide these features. For the reasons set forth below, the Applicants respectfully submit that Rowan is inapplicable.

Rowan is directed to high-speed, multi-end polyester high performance tire and industrial yarn. In this regard, Rowan teaches heating the drawing rolls (5,6) with a surface roughness of 35-120 microinches to between 200°C and 237°C to enable a preferred relaxation factor of between 1-3%. (See column 4, lines 6-7, 13-15, and 23-26 of Rowan.)

Claim 15, however, recites a surface roughness of 1.5S-8S on a heated second roll to enable stable spinning at a higher relaxation ratio of 6-20%. (See page 14, line 29 – page 15, line 1 of the

specification.) Furthermore, Claim 15 recites a second heated roll having a temperature of between 105-180°C, whereas Rowan teaches “...if the temperature is below 200°C [on draw rolls 5 and 6], tenacity is diminished in the final product...” (See column 4, lines 23-25 of Rowan.) Since one of ordinary skill in the art, in view of Rowan, would be discouraged from heating drawing rolls below 200°C, and further from using a surface roughness beyond 35- 120 microinches and to produce a relaxation factor of above 1-3%, Rowan teaches away from the features of Claim 15 and accordingly, may not be used to form a basis for an obviousness rejection.

The Examiner also helpfully notes that Fujimoto is silent as to a CF value of 1-30, as recited in Claim 15. The Examiner explains that in the absence of unexpected results, it would have been obvious to optimize the CF value to create stable and strong yarn with high resistance to breakage. The Applicants note, however, that such an analysis first requires that “...the general conditions of a claim be disclosed in the prior art”. (See *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955).) As noted above, Fujimoto fails to teach the general conditions of Claim 15 and in fact, teaches away from Claim 15. (See discussion above and paragraph [0076] and Table 2, comparative example 5 of Fujimoto.) As a result, absent a disclosure of the claimed subject matter, one of ordinary skill in the art would not be motivated to optimize or even adjust the CF value of a process described as unsuccessful by Fujimoto. Thus, the Applicants respectfully submit that utilizing a CF value of 1-30 is not obvious in view of Fujimoto.

In view of the foregoing remarks, the Applicants respectfully submit that Claim 15 is patentable over Fujimoto, and over Fujimoto in view of Rowan. Withdrawal of this grounds of rejection with regard to Claim 15, and Claims 16-19, 21, 22, and 24 which depend thereon, is respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, the Applicants respectfully submit that Claims 15-19, 21, 22, and 24 are now in condition for allowance and an indication reflecting the same is earnestly solicited.

Respectfully submitted,


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